K18U 0570

Reg. No. : SDHADEOR24

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COMPLEMENTARY COURSE IN ECONOMICS

2C02 ECO : Mathematics for Economic Analysis II

(2014 Admn. Onwards)

Time : 3 Hours

Max. Marks : 40

PART – A

(Answer **all** the **4** questions. **Each** carries **1** mark.)

1. $\int x^n dx =$ _____

2. Every element of a determinant has a _____

3. _____ of a matrix is the sum of the elements of the leading diagonals.

4. _____ is reverse process of differentiation. **(1×4=4)**

PART – B

(Answer **any 7** questions. **Each** carries **2** marks.)

5. Find x and y, if [4 5] + [x y] = [7 3].

6. If the marginal revenue function for output 'q' is given by $MR = \frac{6}{(q+2)^2} - 5$. Find the demand function.

120 - 20P.

7. Explain co-factor of a determinant with an example.

8. What are the rules of integration ?

P.T.O.

9. Are the following two determinants equal ?

$$\begin{vmatrix} 2 & 4 & 5 \\ 1 & 2 & 3 \\ 0 & 1 & 4 \end{vmatrix} \text{ and } \begin{vmatrix} 4 & 2 & 5 \\ 2 & 1 & 3 \\ 1 & 0 & 4 \end{vmatrix}$$

10. Define Eigen value.

11. Integrate log x.

12. Find the rank of $\begin{bmatrix} 5 & 2 & 1 \\ 0 & 1 & 3 \\ 2 & 1 & 0 \end{bmatrix}$.

13. Explain consumer surplus.

14. Explain the properties of definite integrals. **(2×7=14)**

PART – C

(Answer **any 4** questions. **Each** carries **3** marks.)

15. Find the product of $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \\ -1 & 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 & 4 \\ -2 & 3 & 2 \\ 3 & 1 & 1 \end{bmatrix}$.

16. Explain constraint optimization.

17. Integrate $(x + 1)^5$.

18. Evaluate $\begin{vmatrix} a^2 & a & 1 \\ b^2 & b & 1 \\ c^2 & c & 1 \end{vmatrix}$.

19. Explain the methods of integration.

20. Explain five properties of a determinant. **(3×4=12)**

PART – D

(Answer **any 2** questions. **Each** carries **5** marks.)

21. The demand function is D = 250 – 50 p and supply function is S = 25p + 25, calculate equilibrium price. Find consumer's and producer's surplus.

22. Solve the simultaneous equation using Crammer's rule :
$2x - 3y + 5z = 11$, $5x + 2y - 7z = -12$, $-4x + 3y + z = 5$.

23. Find the adjoint of the matrix $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$ and verify the theorem

$A(\text{Adj } A) = (\text{Adj}A)A = |A| I$.

24. Integrate $\dfrac{x}{(x-1)(2x+1)}$.

(5×2=10)